

A BOTTOM TRAWL SURVEY FOR CRABS IN THE  
PRINCE WILLIAM SOUND MANAGEMENT AREA,  
AUGUST 3-13, 1992

By

Charlie Trowbridge



Regional Information Report<sup>1</sup> No. 2A92-31

Alaska Department of Fish and Game  
Division of Commercial Fisheries, Region II  
333 Raspberry Road  
Anchorage, Alaska 99518-1599

December, 1992

---

<sup>1</sup> Contribution C92-10 from the Cordova area office. The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may contain preliminary data; this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

## TABLE OF CONTENTS

LIST OF TABLES . . . . .	iii
LIST OF FIGURES . . . . .	iv
LIST OF APPENDICES . . . . .	v
INTRODUCTION . . . . .	1
OBJECTIVES . . . . .	1
METHODS . . . . .	1
Trawl and Area Description . . . . .	1
Sampling Methods . . . . .	2
Data Analysis . . . . .	3
RESULTS . . . . .	3
General . . . . .	3
Northern/Hinchinbrook Districts . . . . .	3
North Montague Area . . . . .	4
Eastern District . . . . .	4
Tanner Crab Population Estimates . . . . .	5
DISCUSSION . . . . .	5

# LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Target species catch in pounds by station in the Northern District, Prince William Sound trawl survey, 1992 . . .	6
2. Numbers of male Tanner crabs per mile towed by station in the Northern District, Prince William Sound trawl survey, 1992 . . . . .	7
3. Numbers of female Tanner crabs per mile towed by station in the Northern District, Prince William Sound trawl survey, 1992 . . . . .	8
4. Numbers of female Dungeness crabs per mile towed by station in the Northern District, Prince William Sound trawl survey, 1992 . . . . .	9
5. Target species catch in pounds by station in the North Montague District, Prince William Sound trawl survey, 1992 . . . . .	10
6. Numbers of male Tanner crabs per mile towed by station in the North Montague area, Prince William Sound trawl survey, 1992 . . . . .	11
7. Numbers of female Tanner crabs per mile towed by station in the Northn Montague District, Prince William Sound trawl survey, 1992 . . . . .	12
8. Target species catch in pounds by station in the Eastern District, Prince William Sound trawl survey, 1992 . . .	13
9. Tanner crab population estimates in numbers of crab by sex, size and age class, 1992 Prince William Sound survey excluding stations 301-309 . . . . .	14
10. Prince William Sound Area historical Tanner crab catch in pounds by season . . . . .	15

## LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. Prince William Sound Tanner Crab Fishing Districts . . .	16
2. Northern District crab trawl survey stations . . . . .	17
3. North Montague crab trawl survey stations . . . . .	18
4. Eastern District crab trawl survey stations . . . . .	19
5. Male Tanner size frequency, Northern District, 1992 PWS trawl survey . . . . .	20
6. Female Tanner crab size frequency, Northern District, 1992 PWS trawl survey . . . . .	21
7. Male Tanner size frequency, North Montague area, 1992 PWS trawl survey . . . . .	22
8. Female Tanner crab size frequency, North Montague area, 1992 PWS trawl survey . . . . .	23
9. Male Tanner crab catch from Northern/Hinchinbrook Districts, 1991-92 PWS trawl surveys . . . . .	24

## LIST OF APPENDICES

<u>Appendix</u>	<u>Page</u>
A. Fishing log and total catch (lbs) by station in the Northern District, Prince William Sound trawl survey, 1992 . . . . .	25
B. Fishing log and total catch (lbs) by station in the North Montague District, Prince William Sound trawl survey, 1992 . . . . .	26
C. Fishing log and total catch (lbs) by station in the Eastern District, Prince William Sound trawl survey, 1992 . . . . .	26

## INTRODUCTION

The department has been conducting pot surveys for Tanner (Chionoecetes bairdi) crabs in the Prince William Sound (PWS) Management Area since 1977. These surveys have served as indices of crab abundance when compared to ensuing commercial harvests. Once a history of indices and harvests was established, the indices were utilized to determine relative stock condition as well as set preseason harvest guidelines for the commercial fishery. The weaknesses of the pot surveys, such as soak variation and the relative nature of the indices themselves, caused the department to employ a survey method that would provide for direct stock enumeration as well as condition. As a result, beginning in 1991, the department incorporated a trawl survey, along with the existing pot survey, to assess Tanner crab stocks in Prince William Sound.

Historically trawl surveys have been used by the National Marine Fisheries Service (NMFS) in the Bering Sea and the department offices in Kodiak and Homer to assess crab stocks in the Westward Region and Cook Inlet Management Area, respectively. Data from these surveys have proven very satisfactory in determining stock conditions and resultant fisheries management strategies for king and Tanner crabs.

## OBJECTIVES

1. Determine abundance of the Tanner crab stock in the Prince William Sound Management Area (Figure 1).
2. Document size and shell age of all Tanner, red king (Paralithodes camtschaticus), brown king (Lithodes aequispina) and Dungeness (Cancer magister) crabs captured. Determine egg condition of all female crabs caught.
3. Record size and number of Pacific cod (Gadus macrocephalus) and rockfish species.

## METHODS

### Trawl and Area Description

The state research vessel Pandalus, overall length 66 feet, was utilized to conduct the survey. A 400 mesh eastern trawl was fished with 800 pound, 5'x 7', Nor'Eastern Astoria V trawl doors. Headrope and footrope lengths were 70 and 95 feet, respectively. The estimated fishing height and width of the net were 9 and 40 feet, respectively. The trawl had 4.0 inch mesh in the wings and body, 3.5 inch in the intermediate and cod end, and a 1.25 inch cod end liner.

Selection of the general survey areas was based on historical pot index and commercial catch information. Geographic areas that had very limited probability of crab catch or were too deep to trawl were not selected. Historic dockside sampling data indicate that crabs caught in deeper waters by commercial fishermen were virtually all double, triple or greater skip molt postrecruits. Although these animals are part of the adult stock, their assessment is not critical in determining overall stock condition particularly in the depressed PWS Tanner crab population. As the stock recovers, however, assessment of the entire postrecruit segment of the stock will increase in importance.

General survey location areas were: 1) Northern and Hinchinbrook Districts including Orca Bay, Port Fidalgo and Hinchinbrook Entrance, 2) north end of Montague Island from Smith Island to Green Island, and 3) Eastern District in the 100 fathom trench west of Kayak Island. Eastern District stations were fished in 1992 as a consequence of extremely low Tanner crab catch in the Western District stations in 1991, making it unnecessary to survey that area on a yearly basis. Plans for future surveys include establishing and fishing stations in the lower Montague Strait and Cape Cleare area in 1993. Thereafter, the Western, Eastern and lower Montague Strait stations will be surveyed on a rotational basis until crab abundance necessitates more frequent sampling.

#### Sampling Methods

Actual station sizes were based on those dimensions utilized in both the Westward Region and the Cook Inlet Management Area. Bay stations (North Montague and Northern/Hinchinbrook Districts) were 2.5 nautical miles square (6.25 nm<sup>2</sup>) (Figures 2 and 3) and ocean stations (Western District) were 5.0 nautical miles square (25.0 nm<sup>2</sup>) (Figure 4). Station size and shape varied when necessary to allow for irregular coastline and depth. Depths shallower than 50 fathoms were generally precluded from station selection. Elimination of the 50 fathom or less waters was based on historical fishery data as well as the department pot surveys.

Initial goals for tow length and time were 1.0 nautical miles and 30 minutes, respectively. The 30 minute period allowed for a tow speed which would permit the trawl to fish properly for one mile. If hangups caused a reduction in tow length, data from trawls greater than 0.5 miles were used. In an instance where tows were less than 0.5 miles, they were repeated only if the vessel skipper felt a successful tow could be made thereby minimizing potential damage to the net. The trawl path was randomly selected within the station grid by the vessel skipper wherever it appeared that a good tow could be made. All tows were made during daylight hours.

Successful tows were brought aboard and weighed unless the catches were too heavy to be lifted by the vessel's deck equipment. All

king, Tanner and Dungeness crabs were weighed and measured. Width measurements were used for Tanner and Dungeness crabs while length was utilized for king crabs. Shell age and egg condition data were recorded.

Pacific cod and rockfish catches were sampled. All Pacific cod and rockfish were weighed and counted. As many Pacific cod were measured as time allowed. All cod were normally measured. Rockfish were returned to the regional groundfish biologist for further data collection. Qualitative notations only were made on other major fish and invertebrate species.

### Data Analysis

Abundance estimates for Tanner crabs were made using the following area swept equation:

$T = 151.9 (A) (C)$  where 151.9 is a factor to convert catch per nautical mile towed to catch per square nautical mile.

T = the estimated total number of Tanner crabs.

A = the area of the stations in square nautical miles.

C = the average catch per tow in number of crabs.

## RESULTS

### General

A total of 42 good tows were made from August 3 through August 13, 1992. The number of stations fished in the Northern/Hinchinbrook, North Montague and Eastern Districts were 26, 12 and 4, respectively. Total catches of all species and debris were 28,413, 12,963 and 3,662 pounds, respectively for the three previously mentioned areas. Only one of the 42 tows was less than 1.0 nautical mile. This occurred in the North Montague area and the tow length was 0.53 nautical mile (Appendices A, B and C). Tow speed ranged from 1.8 to 2.5 knots and averaged 2.3 knots.

### Northern/Hinchinbrook Districts

Crab catches in the Northern/Hinchinbrook Districts were 852, 18, and 3 pounds of Tanner, Dungeness, and King crabs. Eighty six Pacific cod were captured. These weighed 612 pounds and had a mean length of 65 centimeters. Total catch of all other species and debris was 26,928 pounds (Table 1).

The total number of male Tanners caught was 1,080 animals. The majority (96%) were sublegals (<135 mm). Only 45 crabs (4%) were legal. True prerecruit one, two, and three crabs comprised 1, 15



and 12 percent, respectively, of all males caught. A true prerecruit or true recruit crab is identified as a new shelled animal in the respective size classes. The largest portion of the catch was from those animals smaller than the prerecruit three size class which comprised 42 percent of the total male catch (Table 2 and Figure 5).

A total of 820 female Tanners were caught. Of these, 415 were juveniles and the remaining 405 were adults. Among adult females, 328 (81%) had full clutches. All eggs were uneyed. One hundred sixty two (40%) were newly mature (Table 3 and Figure 6).

Two juvenile female red king crab were captured. Twenty three Dungeness, 4 males and 19 females, were captured in the western Orca Bay portion of the Northern/Hinchinbrook Districts. All males were sublegal. None of the females were egg bearing (Table 4).

#### North Montague Area

Crab catches in the North Montague portion of the survey area totalled 703 pounds of Tanner and 1 pound of Dungeness. No king crabs were captured. Pacific cod catch was comprised of 19 fish weighing 172 pounds with an average length of 68 centimeters. The total catch of all other species and debris was 12,155 pounds (Table 5).

Total male Tanner crab catch was 703 animals. Males in the prerecruit two size class and smaller dominated the catch with 80% (564) of the total males caught. The true prerecruit two size class was the single largest catch component at 33% (229) of the total. Legal males accounted for 4% (25) of the male catch. A single station, number 105, accounted for 34 percent (241) of the males captured (Table 6 and Figure 7).

Female Tanner catch was 694 crabs and consisted of 241 (35%) juveniles and 453 (65%) adults. Adults with full clutches comprised 90% (406) and those with partial clutches 9% (43) of adult females. Primiparous (newly mature) females accounted for 66% (301) of adult females captured. Primiparous females often exhibit partial clutches. This does not indicate a reproductive problem. Eggs in all mature females were uneyed (Table 7 and Figure 8). Only four females were barren.

A single barren oldshell female Dungeness crab was captured.

#### Eastern District

Eastern District crab catches totalled less than a pound of Tanners. No king or Dungeness crabs were found. Six Pacific cod weighing 46 pounds and with a mean length of 66 centimeters were

captured. The total catch of all other species and debris was 3,616 pounds (Table 8).

Four Tanner crabs, one male at 45mm and three females ranging in size from 28-38mm, were caught. All were juveniles.

Station number 308 caught 140 Pacific weathervane scallops (*Patinopecten magellicanus*). Total weight was 31 pounds and shucked meat weight was 3 pounds. Shells were retained for size and age information.

#### Tanner Crab Population Estimates

The Tanner crab population estimates for catchable males and females were 1,657,583 and 1,421,713 crabs, respectively for the entire sampled area excluding the Eastern District. The Eastern District was omitted from the estimate due to the very low catch of one male and three females.

The population estimate of legal male Tanner crabs was 65,314 animals. The true recruit estimate was 9,474 crabs. The estimate of true prerecruit ones was 135,806 crabs. The largest catch of males was in the true prerecruit two and smaller size classes with a total of 1,177,189 animals (Table 9).

#### DISCUSSION

The Tanner crab stock in all districts of the Prince William Sound Management Area has been in a depressed condition since the early part of the 1980's. The commercial fishery has been closed in the entire management area since 1989 with partial district closures since 1984 (Table 10). Waters inside the Sound were the major contributor to the most recent harvests (1986-88).

The anticipated growth from prerecruit three to prerecruit two size classes was observed from 1991 to 1992 (Figure 9). The increase in the number of true prerecruit one and two crabs over 1991 levels is encouraging as these should have a high probability of molting and will bolster recruitment to the legal segment of the stock over the next two years.

Data from the 1992 trawl survey do not indicate a near term recovery of the Tanner stock. The estimate of legal crab abundance in the Northern and Hinchinbrook Districts remains significantly less than the commercial fishery historical low. Recruitment to the legal segment of the stock in 1992 was extremely low. Contingent upon the occurrence of skip molting, the 1993 survey should indicate an increase in both the legal and prerecruit one stock segments. Although the numbers of juvenile and sublegal crabs may signify a longer term recovery, the adult and legal male segments of the stock remain at very low levels.

Table 1 . Target species catch in pounds by station in the Northern District, Prince William Sound trawl survey, 1992.

Station Number	Tanner	Dungeness	King	Pacific Cod	Rockfish <sup>a</sup> (spp)	Misc. <sup>b</sup>	Total Catch
1	3	0	0	5	--	1196	1204
2	19	0	0	2	--	1281	1302
3	31	10	0	4	--	1103	1148
4	4	0	0	24	--	594	622
5	89	1	0	14	--	1186	1290
6	27	0	0	17	--	451	495
7	29	1	0	27	--	1088	1145
8	84	3	0	0	--	838	925
9	69	0	0	54	--	1265	1388
10	19	1	0	7	--	965	992
11	5	0	0	4	--	1106	1115
12	57	0	0	16	--	426	499
13	7	0	0	64	--	1752	1823
14	69	0	3	49	--	1523	1644
15	35	0	0	16	--	997	1048
16	11	0	0	39	--	1156	1206
17	87	1	0	20	--	329	437
18	8	0	0	68	--	1368	1444
19	74	0	0	14	--	642	730
20	8	0	0	7	--	579	594
21	22	0	0	48	--	1295	1365
22	2	0	0	12	--	1337	1351
23	15	0	0	0	--	1546	1561
24	1	0	0	0	--	685	686
26	7	0	0	9	--	839	855
28	71	0	0	92	--	1381	1544
26	853	17	3	612	--	26,928	28,413

<sup>a</sup> Rockfish data will be reported by the regional groundfish biologist. This will result in adjusted Misc. catch.

<sup>b</sup> Misc. = miscellaneous invertebrates, fish, and debris.

Table 2. Numbers of male Tanner crabs per mile towed by station in the Northern District, Prince William Sound trawl survey, 1992.

Station	----- Sublegal Males -----						----- Legal Males -----				Total Legals	Total Males
	< 72	73-92	93 - 112 (new) (old)		113 - 134 (new) (old)		135 - 157 (new) (old)		> 157 (new) (old)			
1	15	1	0	0	0	1	0	0	0	0	0	17
2	0	0	3	0	1	8	0	1	0	0	1	13
3	0	1	3	3	2	5	1	2	0	0	3	17
4	0	0	0	1	0	1	0	0	0	0	0	2
5	11	5	2	9	2	19	0	17	0	0	17	65
6	2	0	3	1	2	7	0	2	0	0	2	17
7	4	0	4	2	5	6	0	3	0	0	3	24
8	0	3	7	6	21	12	1	7	0	1	9	58
9	11	1	3	2	5	11	3	1	0	0	4	37
10	2	0	1	0	2	2	0	0	0	0	0	7
11	34	0	1	0	0	1	0	0	0	0	0	36
12	15	4	3	9	4	5	0	1	0	0	1	41
13	18	4	2	1	1	0	0	0	0	0	0	26
14	47	38	32	12	7	2	0	0	0	0	0	138
15	7	2	8	3	5	4	1	0	0	0	1	30
16	15	2	3	3	2	0	0	0	0	0	0	25
17	23	15	14	11	8	5	0	2	0	0	2	78
18	42	0	1	1	1	1	0	0	0	0	0	46
19	50	2	46	6	17	5	0	0	0	0	0	126
20	12	0	3	0	2	0	0	0	0	0	0	17
21	29	8	7	1	2	1	0	0	0	0	0	48
22	19	0	0	0	0	0	0	0	0	0	0	19
23	40	17	4	0	0	0	0	0	0	0	0	61
24	6	0	0	0	0	0	0	0	0	0	0	6
26	23	6	0	1	0	0	0	0	0	0	0	30
28	29	22	8	13	1	21	0	2	0	0	2	96
26	454	131	158	85	90	117	6	38	0	1	45	1,080

Table 3. Numbers of female Tanner crabs per mile towed by station in the Northern District, Prince William Sound trawl survey, 1992.

Station	Juveniles	Full clutches			Partial clutches			Barren			Total Mature			Total Females
		New	Old	VO	New	Old	VO	New	Old	VO	New	Old	VO	
1	16	1	0	0	1	0	0	0	0	0	2	0	16	18
2	0	0	0	0	0	0	3	0	0	0	0	0	3	3
3	0	0	5	8	0	0	4	0	0	2	0	5	12	19
4	0	0	0	2	0	0	2	0	0	0	0	0	4	4
5	14	0	10	3	0	0	0	0	0	0	0	10	17	27
6	2	3	11	1	1	0	0	0	0	0	4	11	3	18
7	12	1	1	0	0	0	0	0	0	0	1	1	12	14
8	0	6	3	10	2	0	2	0	0	1	8	3	12	24
9	15	1	23	24	2	0	17	0	0	4	3	23	56	86
10	3	19	2	0	3	0	1	0	0	0	22	2	4	28
11	23	0	0	1	0	0	1	0	0	0	0	0	25	25
12	19	36	18	2	9	3	0	0	0	1	45	21	21	88
13	7	0	0	0	0	0	0	0	0	0	0	0	7	7
14	37	4	1	0	1	0	0	0	0	0	5	1	37	43
15	12	13	5	1	5	1	0	0	0	0	18	6	13	37
16	12	0	0	0	0	0	0	0	0	0	0	0	12	12
17	20	31	55	1	5	0	1	0	0	0	36	55	22	113
18	42	0	0	0	0	0	0	0	0	0	0	0	42	42
19	45	8	4	0	0	2	0	0	0	0	8	6	45	59
20	6	0	0	0	0	0	0	0	0	0	0	0	6	6
21	33	3	1	0	1	0	0	0	0	0	4	1	33	38
22	15	0	0	0	0	0	0	0	0	0	0	0	15	15
23	20	0	1	0	0	1	0	0	0	0	0	2	20	22
24	3	0	0	0	0	0	0	0	0	0	0	0	3	3
26	26	1	1	0	0	0	0	0	0	0	1	1	26	28
28	33	4	2	1	1	0	0	0	0	0	5	2	34	41
Total	415	131	143	54	31	7	31	0	0	8	162	150	500	820

Table 4. Numbers of female Dungeness crabs per mile towed by station in the Northern District, Prince William Sound trawl survey, 1992. <sup>a</sup>

Stations	Juveniles	Full clutches			Partial clutches			Barren			Total Mature			Total Females
		New	Old	VO	New	Old	VO	New	Old	VO	New	Old	VO	
3	0	0	0	0	0	0	0	2	5	4	2	5	4	11
5	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8	0	0	0	0	0	0	0	0	0	4	0	0	4	4
16	0	0	0	0	0	0	0	0	1	0	0	1	0	1
17	0	0	0	0	0	0	0	0	0	1	0	0	1	1
6	0	0	0	0	0	0	0	2	6	11	2	6	11	19

<sup>a</sup> Unlisted stations had no female dungeness crab catch.

Table 5 . Target species catch in pounds by station in the North Montague District, Prince William Sound trawl survey, 1992.

Station Number	Tanner	Dungeness	King	Pacific Cod	Rockfish <sup>a</sup> (spp)	Misc. <sup>b</sup>	Total Catch
101	14	0	0	18	--	578	610
102	6	0	0	6	--	410	422
103	44	0	0	12	--	1050	1106
104	26	0	0	46	--	3342	3414
105	132	1	0	48	--	1904	2085
106	13	0	0	0	--	199	212
107	38	0	0	0	--	658	696
108	106	0	0	0	--	1062	1168
109	23	0	0	0	--	445	468
110	25	0	0	0	--	943	968
111	118	0	0	10	--	852	980
112	90	0	0	32	--	712	834
12	635	1	0	172	--	12,155	12,963

<sup>a</sup> Rockfish data will be reported by the regional groundfish biologist. This will result in adjusted Misc. catch.

<sup>b</sup> Misc. = miscellaneous invertebrates, fish, and debris.

Table 6. Numbers of male Tanner crabs per mile towed by station in the North Montague area, Prince William Sound trawl survey, 1992.

Station	----- Sublegal Males -----						----- Legal Males -----				Total Legals	Total Males
	< 72	73-92	93 - 112 (new) (old)		113 - 134 (new) (old)		135 - 157 (new) (old)		> 157 (new) (old)			
101	31	2	2	2	0	2	0	0	0	0	0	39
102	17	2	1	0	0	0	0	0	0	0	0	20
103	20	7	22	0	9	3	0	0	0	0	0	61
104	3	17	11	0	2	2	0	2	0	0	2	37
105	5	124	95	0	15	0	1	0	1	0	2	241
106	2	1	2	0	1	2	0	1	0	0	1	9
107	25	3	8	0	4	2	0	1	0	0	1	43
108	34	20	63	2	10	6	2	1	0	0	3	138
109	3	1	0	0	2	1	0	3	0	0	3	10
110	1	0	1	0	2	1	0	2	0	0	2	7
111	0	3	17	7	16	22	1	4	0	1	6	71
112	0	2	7	1	3	9	0	5	0	0	5	27
12	141	182	229	12	64	50	4	19	1	1	25	703



Table 7. Numbers of female Tanner crabs per mile towed by station in the Northern Montague District, Prince William Sound trawl survey, 1992.

Stations	Juveniles	Full clutches			Partial clutches			Barren			Total Mature			Total Females
		New	Old	VO	New	Old	VO	New	Old	VO	New	Old	VO	
101	47	3	0	0	0	0	0	0	0	0	3	0	0	50
102 <sup>a</sup>	14	1	0	0	0	0	0	0	0	0	1	0	0	15
103	24	21	2	5	2	0	1	0	0	1	23	2	7	56
104	17	7	0	0	1	0	0	0	0	0	8	0	0	25
105	55	101	4	0	11	0	1	0	0	0	112	4	1	172
106	3	0	3	1	0	0	0	0	0	0	0	3	1	7
107	35	31	1	0	2	0	0	0	0	0	33	1	0	69
108	38	19	8	6	2	0	1	0	0	1	21	8	8	75
109	2	5	13	1	1	0	0	0	0	0	6	13	1	22
110	1	3	18	2	0	0	4	0	0	1	3	18	7	29
111	3	28	25	2	8	0	0	1	0	0	37	25	2	67
112	2	49	36	11	6	1	2	0	0	0	55	37	13	107
12	241	268	110	28	33	1	9	1	0	3	302	111	40	694

<sup>a</sup> Station length was 0.53 miles.

Table 8. Target species catch in pounds by station in the Eastern District, Prince William Sound trawl survey, 1992.

Station Number	Tanner	Dungeness	King	Pacific Cod	Rockfish <sup>a</sup> (spp)	Misc. <sup>b</sup>	Total Catch
301	0	0	0	0	--	320	320
303	0	0	0	15	--	1247	1262
306	0	0	0	31	--	1149	1180
308	0	0	0	0	--	900	900
4	< 1	0	0	46	--	3,616	3,662

<sup>a</sup> Rockfish data will be reported by the regional groundfish biologist. This will result in adjusted Misc. catch.

<sup>b</sup> Misc. = miscellaneous invertebrates, fish, and debris.

Table 9 . Tanner crab population estimates in numbers of crab by sex size and age class, Prince William Sound survey excluding stations 301 – 309. <sup>a</sup>

	Population estimate (no.)
<u>MALES</u>	
<73 mm	522,363
73 – 92	287,565
93 – 112	
new	367,261
old & vo	90,965
113 – 134 mm	
new	135,806
old & vo	158,309
135 – 157 mm	
new	9,474
old & vo	53,397
>158	
new	843
old & vo	1,600
Total Legal Males	65,314
Total Males	1,657,583
<u>FEMALES</u>	
Juveniles	613,447
Adults	808,266
Total Females	1,421,713

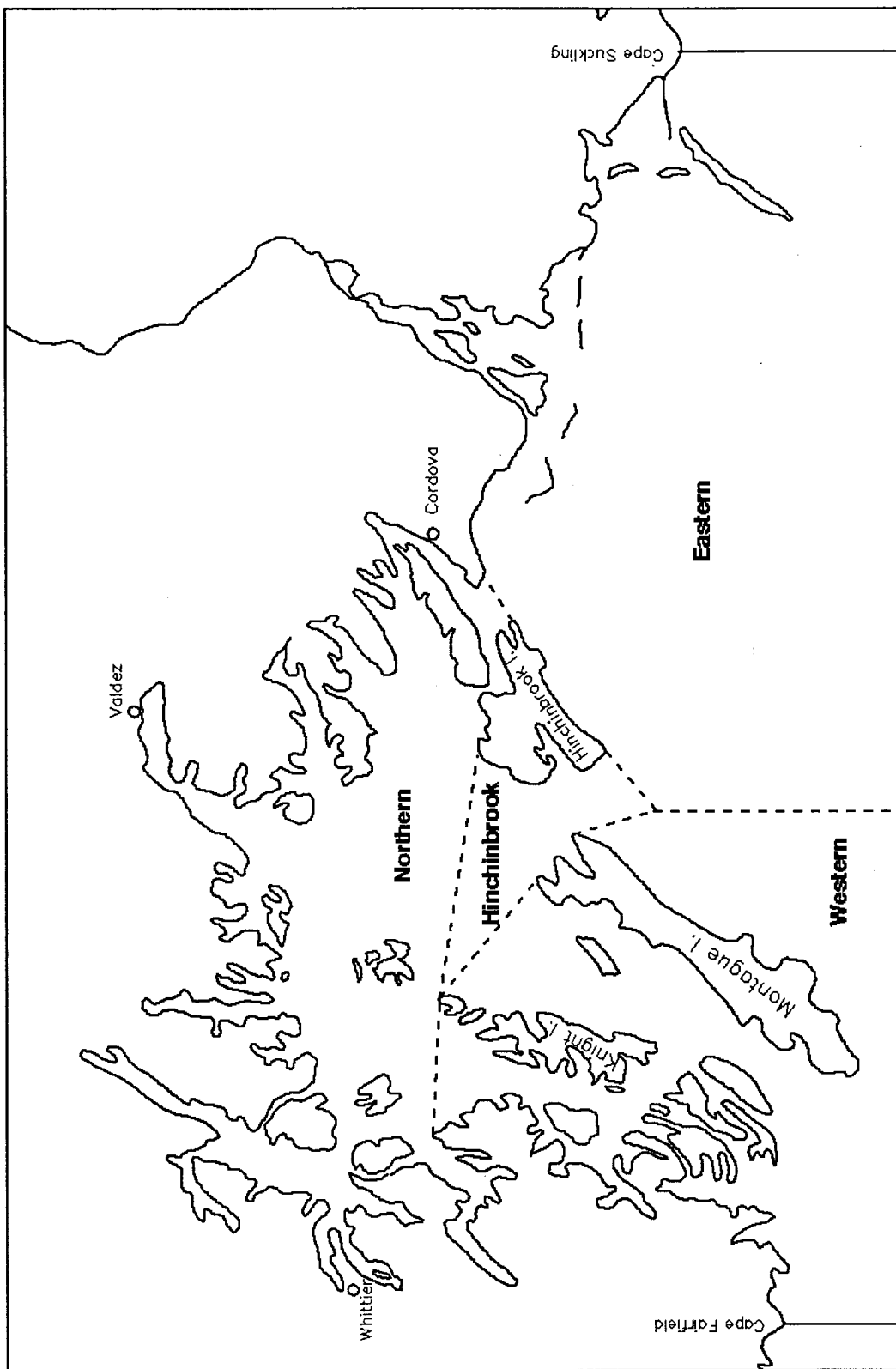
<sup>a</sup> Stations in the Eastern district near Kayak Island.

Table 10 . Prince William Sound Area historical Tanner crab catch in pounds, by season.

Season	Inside	Outside	Total	Vessels	Lndgs.	% Recruit	Avg. Wt.	# Crab
1968-69			1,235,613					
1969-70			1,284,597					
1970-71			4,159					
1971-72			7,788,498					
1972-73			13,927,868					
1973-74	1,658,000	8,500,000	10,158,000					
1974-75	1,187,000	2,667,000	3,854,000					
1975-76	3,322,482	3,810,262	7,132,744					
	Northern	Hinchinbrook	Western	Eastern				
1976-77(1)	782,048	766,650	701,725	70,925	2,321,348	23	316	
1977-78	994,721	1,161,831	2,079,549	570,573	4,806,674	38	591	2.2 2,184,852
1978-79	649,977	708,562	2,248,545	3,443,471	7,050,555	51	783	2.1 3,357,408
1979-80	140,228	332,583	1,462,059	4,057,847	5,992,717	49	561	2.0 2,996,359
1980-81	152,196	812,352	1,561,207	250,076	2,775,831	30	304	2.1 1,321,824
1981-82	351,139	722,834	1,503,253	288,425	2,865,651	29	216	-- -----
1982-83	471,422	31,447	921,663	45,308	1,469,840	40	304	2.1 699,924
1984 (2)	Closed	Closed	Closed	No Effort	0	0	0	-- -- -----
1985	Closed	Closed	No Effort	No Effort	0	0	0	-- -- -----
1986	137,720	236,241	160,829	587	535,377	14	35	26 2.1 254,941
1987	152,834	222,052	196,246	0	571,132	23	65	51 2.1 271,968
1988	55,929	226,509	191,654	0	474,092	21	46	34 2.1 225,758
1989	Closed	Closed	Closed	Closed	0	0	0	-- -- -----
1990	Closed	Closed	Closed	Closed	0	0	0	-- -- -----
1991	Closed	Closed	Closed	Closed	0	0	0	-- -- -----
1992	Closed	Closed	Closed	Closed	0	0	0	-- -- -----

(1) New districts established and first season of the minimum legal size.

(2) Calendar year season established.



**Figure 1. Prince William Sound Tanner Crab Fishing Districts**



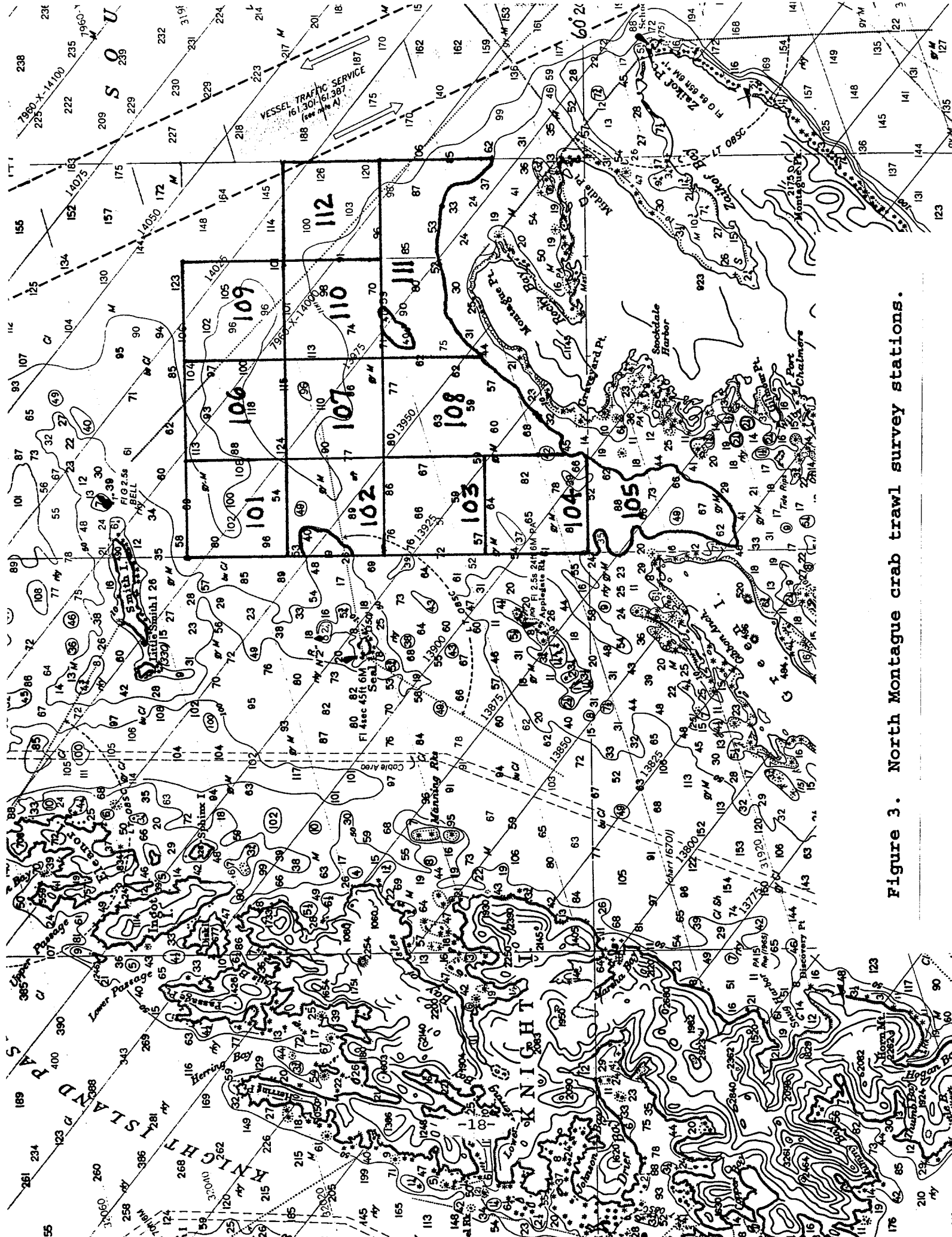


Figure 3. North Montague crab trawl survey stations.

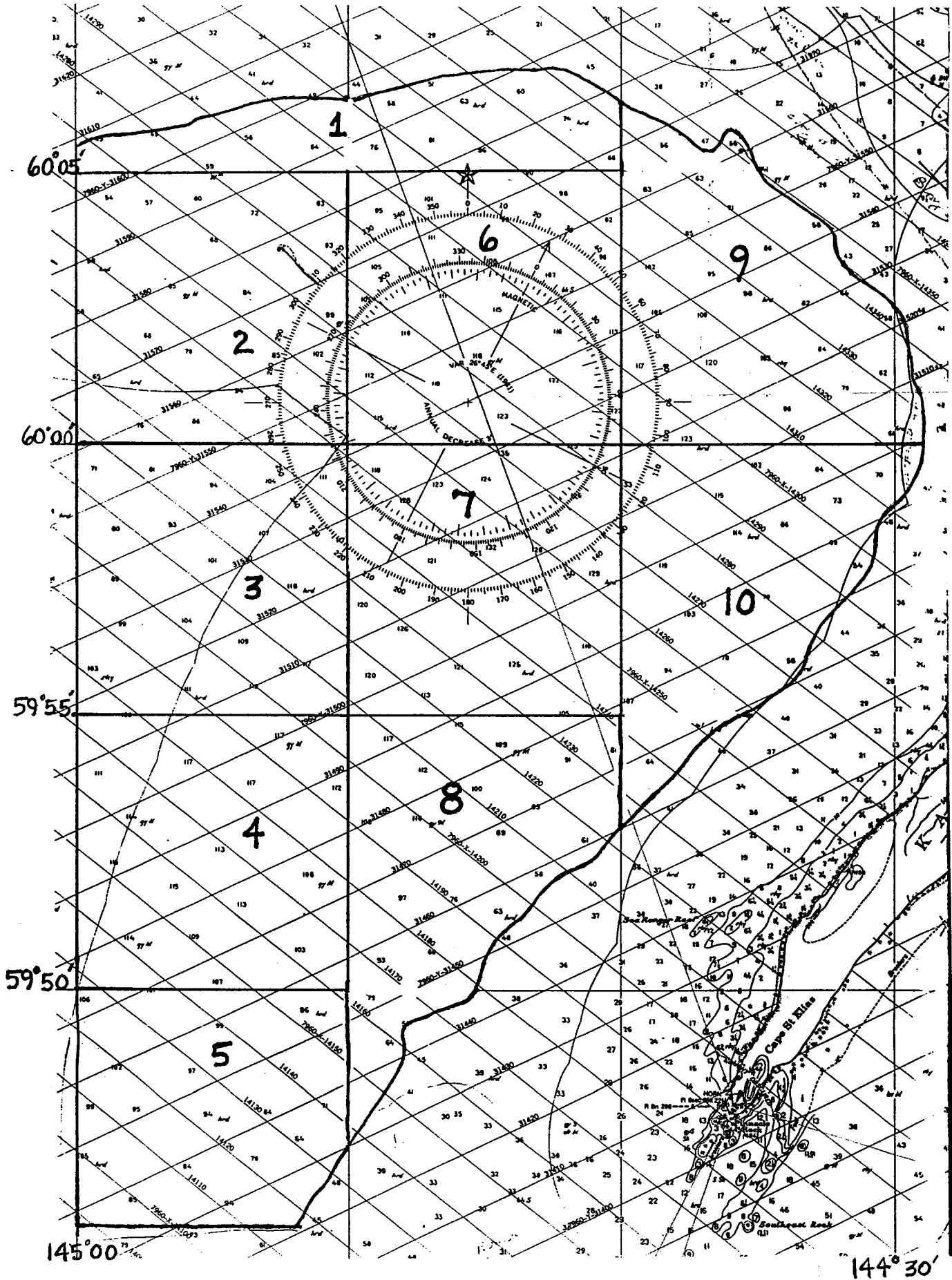


Figure 4. Eastern District crab trawl survey stations.



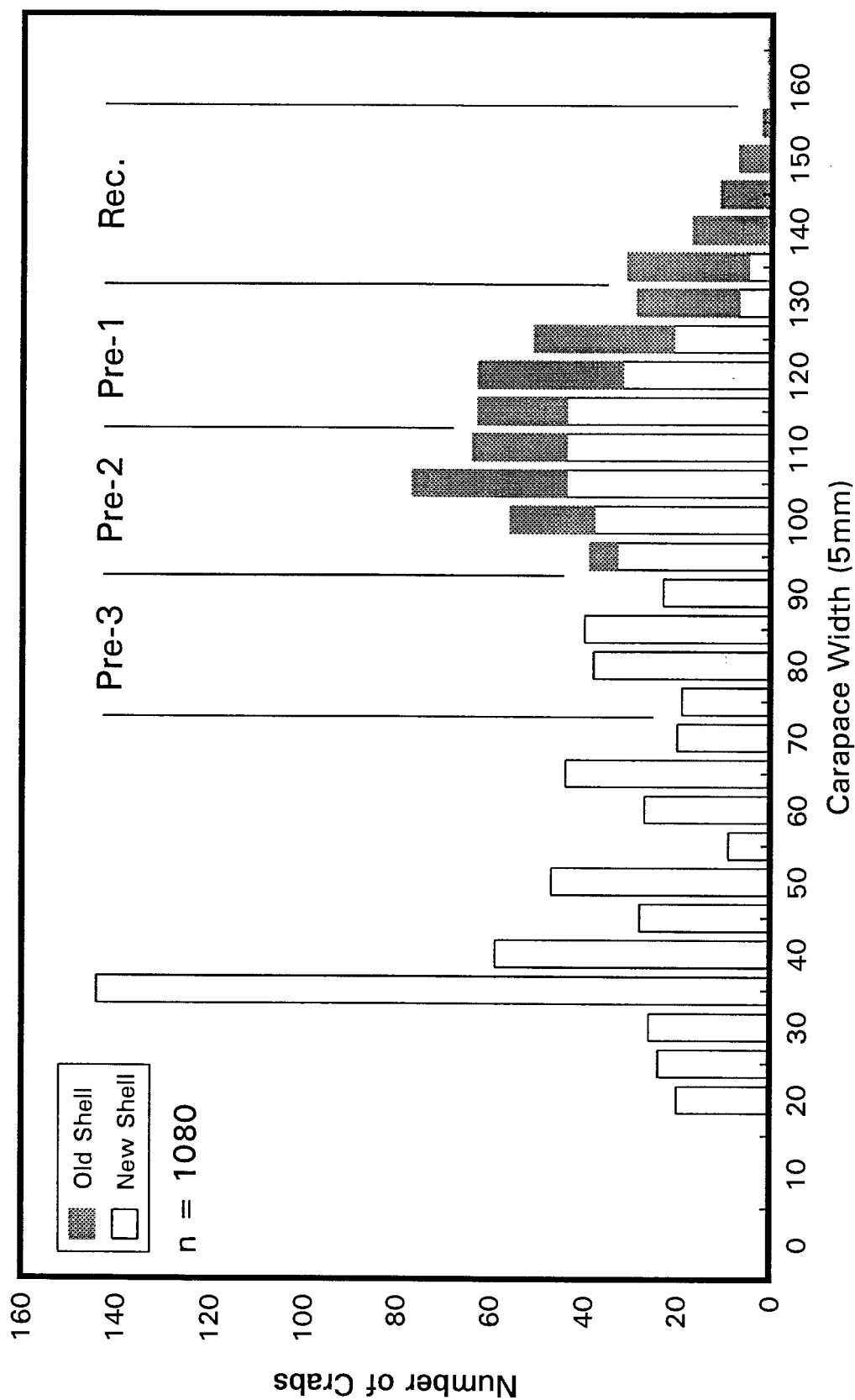


Figure 5. Male Tanner size frequency, Northern District, 1992 PWS trawl survey.

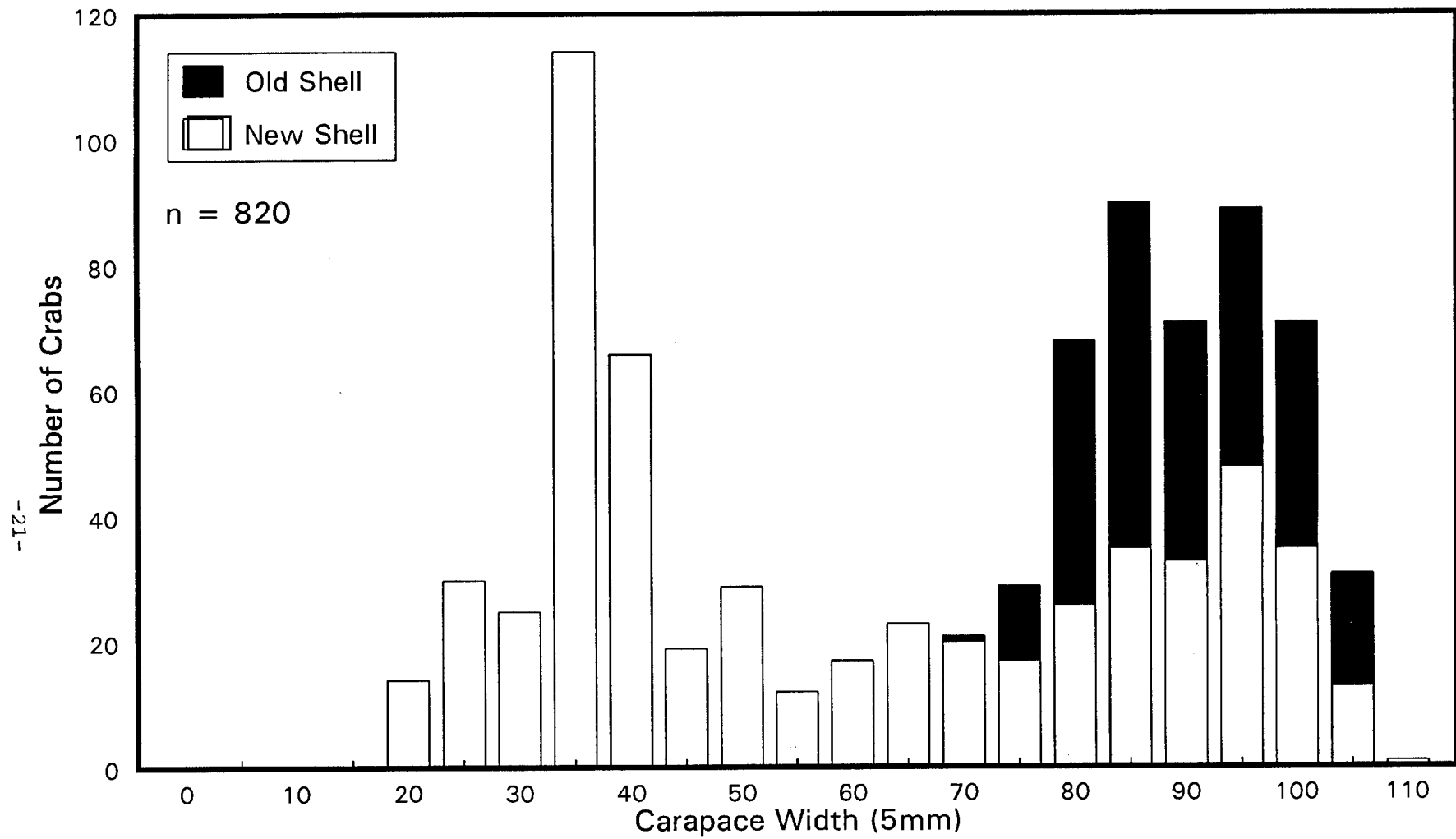


Figure 6. Female Tanner crab size frequency, Northern District, 1992 PWS trawl survey.

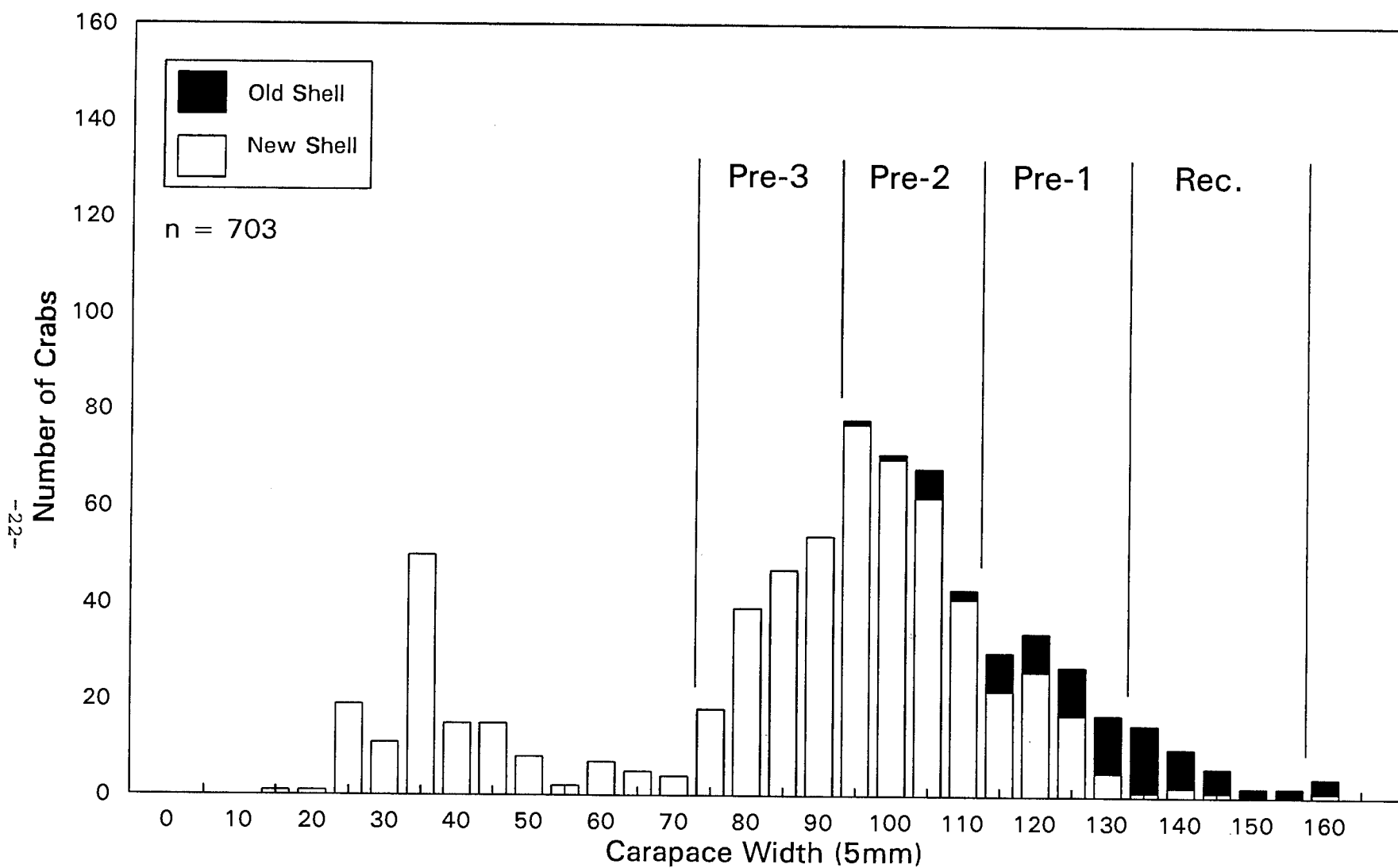


Figure 7. Male Tanner size frequency, North Montague area, 1992 PWS trawl survey.

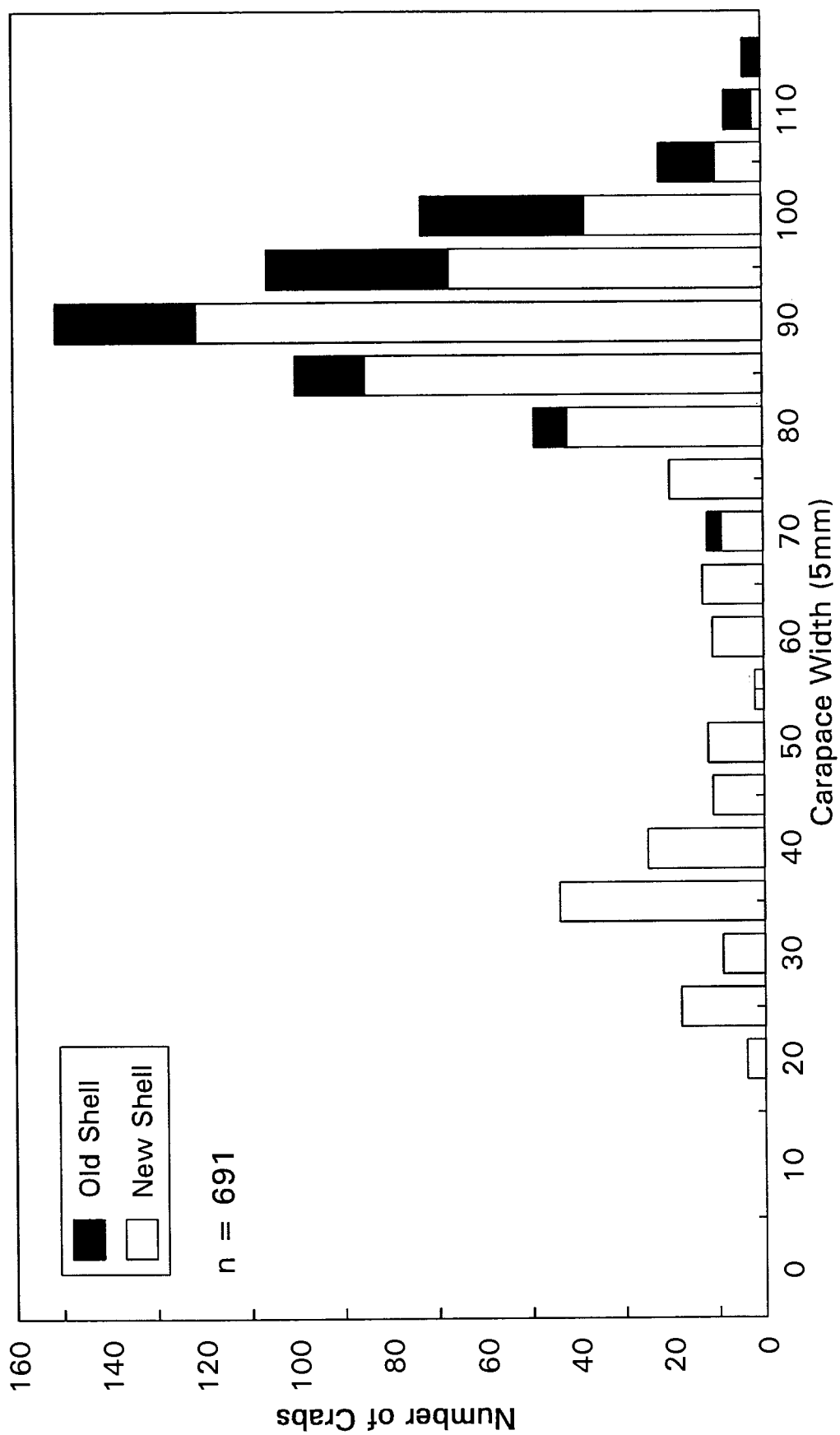


Figure 8. Female Tanner crab size frequency, North Montague area, 1992 PWS trawl survey.

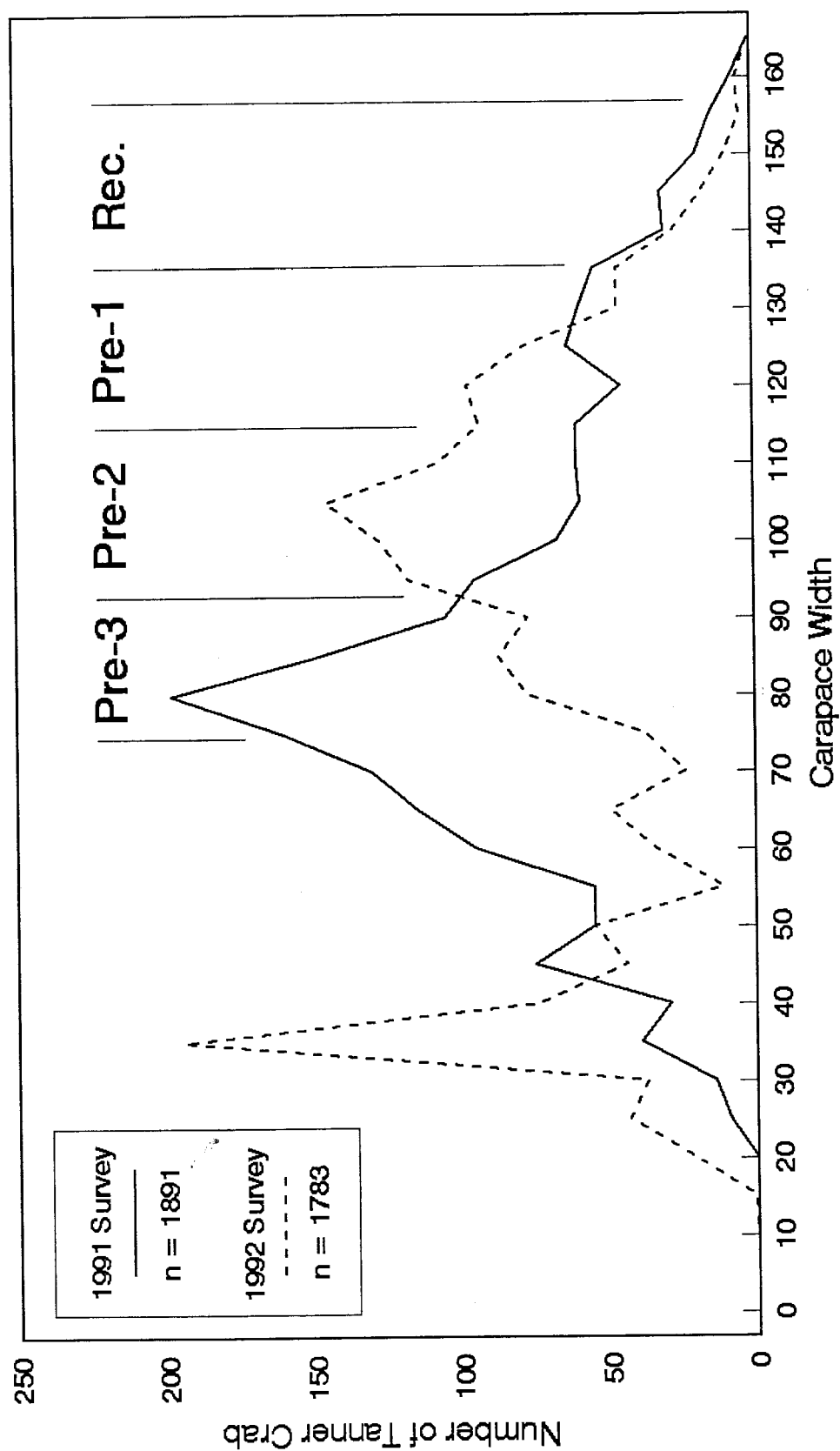


Figure 9. Male Tanner crab catch from Northern/Hinchinbrook Districts, 1991-92  
PWS trawl surveys.

Appendix A . Fishing log and total catch (lbs) by station in the Northern District, Prince William Sound trawl survey, 1992.

Station	Area (nm <sup>2</sup> )	Date	Latitude	Longitude	Heading	Time (min)	Length (nm)	Depth (min) (max)	Catch (lbs)
1	5.99	08/10/92	60 38.82	146 42.86	135	28	1.00	85 86	1204
2	5.91	08/09/92	60 30.04	146 40.98	290	28	1.00	102 102	1302
3	4.13	08/07/92	60 28.83	146 40.84	170	28	1.00	88 90	1148
4	5.95	08/07/92	60 26.78	146 44.00	260	29	1.00	117 119	622
5	7.44	08/10/92	60 35.34	146 35.76	48	28	1.00	67 67	1290
6	6.13	08/09/92	60 33.39	146 39.24	70	27	1.00	57 62	495
7	6.13	08/09/92	60 32.33	146 36.16	210	28	1.00	65 68	1145
8	2.83	08/09/92	60 30.04	146 35.77	205	29	1.00	75 85	925
9	6.13	08/10/92	60 33.94	146 30.39	207	32	1.00	73 73	1388
10	6.28	08/11/92	60 31.65	146 33.15	45	25	1.00	63 63	992
11	6.40	08/11/92	60 36.76	146 29.16	76	32	1.00	57 62	1115
12	8.97	08/12/92	60 33.16	146 26.37	200	31	1.00	62 64	499
13	2.71	08/11/92	60 42.60	146 10.24	30	30	1.00	100 105	1823
14	6.99	08/11/92	60 41.42	146 15.90	190	29	1.00	74 74	1644
15	6.65	08/11/92	60 39.00	146 19.00	192	28	1.00	71 71	1048
16	5.30	08/12/92	60 35.75	146 24.52	59	28	1.00	64 65	1206
17	4.64	08/12/92	60 34.35	146 22.84	220	32	1.00	68 68	437
18	6.71	08/12/92	60 35.53	146 14.45	55	27	1.00	76 76	1444
19	5.01	08/12/92	60 33.84	146 18.49	65	29	1.00	66 71	0
20	5.55	08/13/92	60 34.03	146 11.53	225	32	1.00	75 75	594
21	4.79	08/13/92	60 35.56	146 07.57	265	29	1.00	69 76	1365
22	5.11	08/13/92	60 33.53	146 09.00	90	29	1.00	81 82	1351
23	6.99	08/13/92	60 34.30	146 03.20	50	30	1.00	95 107	1561
24	4.86	08/13/92	60 36.07	146 52.00	270	35	1.00	97 101	686
26	5.74	08/10/92	60 47.65	146 29.03	235	30	1.00	105 106	855
28	5.78	08/10/92	60 47.53	146 39.78	200	29	1.00	85 91	1544
n = 26	149.12						26.00		27,683

Appendix B . Fishing log and total catch (lbs) by station in the North Montague District, Prince William Sound trawl survey, 1992

Station	Area (nm <sup>2</sup> )	Date	Latitude	Longitude	Heading	Time (min)	Length (nm)	Depth (min) (max)	Catch (lbs)
101	6.13	08/06/92	60 28.28	147 18.69	38	28	1.00	101 110	610
102	6.03	08/05/92	60 25.57	147 17.34	45	15	0.53	95 96	422
103	6.13	08/05/92	60 24.38	147 17.02	5	27	1.00	65 75	1106
104	6.13	08/04/92	60 20.60	147 18.92	20	28	1.00	78 81	3414
105	5.55	08/04/92	60 17.70	147 17.20	345	27	1.00	67 76	2085
106	6.13	08/06/92	60 28.93	147 12.64	33	25	1.00	88 99	212
107	6.13	08/05/92	60 25.25	147 14.45	0	31	1.00	89 94	696
108	8.56	08/04/92	60 23.46	147 13.80	20	30	1.00	62 70	1168
109	6.13	08/06/92	60 28.04	147 06.96	300	28	1.00	103 104	468
110	6.13	08/06/92	60 26.34	147 05.42	0	26	1.00	89 103	968
111	7.70	08/03/92	60 24.30	147 07.47	0	26	1.00	80 92	980
112	5.99	08/03/92	60 26.27	147 01.54	120	28	1.00	120 139	834
n = 12	76.74						11.53		12,963

Appendix C . Fishing log and total catch (lbs) by station in the Eastern District, Prince William Sound trawl survey, 1992.

Station	Area (nm <sup>2</sup> )	Date	Latitude	Longitude	Heading	Time (min)	Length (nm)	Depth (min) (max)	Catch (lbs)
301	25.11	08/08/92	60 06.51	144 56.79	40	26	1.00	34 42	320
303	25.00	08/08/92	59 57.62	144 54.17	60	29	1.00	107 114	1262
306	25.31	08/08/92	60 02.16	144 46.70	55	29	1.00	115 117	1180
308	20.38	08/08/92	59 50.85	144 44.99	20	29	1.00	52 52	900
n = 4	95.80						4.00		3,662

The Alaska Department of Fish and Game conducts all programs and activities free from discrimination on the basis of sex, color, race, religion, national origin, age, marital status, pregnancy, parenthood or disability. For information on alternative formats available for this and other department publications, please contact the department ADA Coordinator at (voice) 907-465-4120, (TDD) 1-800-478-3648 or (fax) 907-586-6596. Any person who believes s/he has been discriminated against should write to: ADF&G, P.O. Box 25526, Juneau, AK 99802-5526; or O.E.O., U.S. Department of the Interior, Washington, DC 20240.